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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TO, JENNIFER N

ART UNIT	PAPER NUMBER
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2195

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/516,609

Applicant(s)

HOSTETTER ET AL.

Examiner

Jennifer N. To

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 26 and 27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-27 are pending in the application.

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Group I, drawn to claims 1-25, draw to a method of loading atomized computer code and data, classified in class 719, subclass 331.
 - II. Group II, drawn to claims 26-27, draw to a memory for storing data structure classified in class 707, subclass 101.
3. Inventions Group I, and Group II are related as subcombinations disclosed as usable together in a single combination. Group I is draw to a method for loading atomized computer code and data. Group II is draw to a data structure that store in a memory. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, inventions Group I, and Group II have separate utility such as search for Group I invention is not require for Group II, or Group III invention and vice versa. See MPEP § 806.05(d).
4. Because these inventions are distinct for the reasons given above and have required a separate status in the art shown by their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for one group is not required for the other group, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Mr. Joshua Liu on 08/18/2005 a provisional election was made with traverse to prosecute the invention of group I, claims 1-25. Applicant in replying to this Office action must make affirmation of this election. Claims 26-27 withdraw from further consideration by the examiner, 37 CFR 1.1142(b), as being draw to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

8. It is noted that although the present application does contain line numbers in the specification and claims, the line numbers in the claims do not correspond to the preferred format. The preferred format is to number each line of every claim, with each claim beginning with line 1. For ease of reference by both the Examiner and Applicant all future correspondence should include the recommended line numbering.

Double Patenting

9. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

10. Claims 1-25 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-25 of copending Application No. 10/161964. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 101

11. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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12. Claims 24-25 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

13. As per claims 24-25, the program code embedded in a carrier wave signal does not produce a tangible result. Therefore, claims 24-25 are non-statutory.

Claim Rejections - 35 USC § 112

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter in which the applicant regards as his invention.

15. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The following terms lack proper antecedent basis:

i. the atoms – claims 8-10;

b. The claim language in the following claims is not clearly understood:

i. as per claim 1, line 1, it is not clearly understood what is meant by “atomized computer program code”. Line 3, it is not clearly understood what is meant by “an atom defining code or data in a fine-grained” (i.e. how).

ii. as per claim 2, line 2, it is not clearly understood what is meant by “stub routine”.

- iii. as per claims 3, and 4, it is uncertain what is the relationship between "a memory address of a stub routine" of claim 2, and "a memory address to a stub routine" of claims 3-4 (i.e. is it the same or different, if it is the same, then the word "to" should be "of").
- iv. as per claim 13, line 1, it is not clearly understood what is meant by "wherein execution of a loaded atom" (i.e. there isn't any step disclosed in claim 1 that mentioned execution of a loaded atom).
- v. as per claim 14, lines 2-3, it is not clearly understood what is meant by "to effect an eager or lazy loading technique".
- vi. as per claim 17, lines 8-9, it is not clearly understood what is meant by "to use atom identifiers" (i.e. there isn't any atom identifiers mention in all the previous steps).
- vii. as per claims 18-25, they are having the same deficiencies as claims 1, and 17. Appropriate corrections are required.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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17. Claims 1-10, 12-15, and 18, 20, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sands (U.S. Patent No. 5291601).

18. As per claims 1, 18, 20, 22, and 24, Sands teaches the invention substantially as claimed including a method of loading computer program code and data on demand (abstract, lines 1-4), comprising:

loading, from an item database, into a memory, an library item defining code or data in a fine-grained, individually addressable manner (fig. 3A, item 76; abstract, lines 8-10; col. 2, lines 59-60; col. 3, lines 5-10), the library item comprising:

a library item identifier; computer program code or data information; computer program code or data reference information (col. 2, lines 59-60; col. 3, lines 5-10; col. 4, lines 54-64); and

modifying the computer program code or data information by transforming a referencing library item identifier into a memory address (col. 3, lines 15-23).

Sands did not specifically teach an atom.

19. However, Sands disclosed a library item a library item defining code or data in a fine-grained, individually addressable manner (col. 3, lines 5-10).

20. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have recognized that Sands teaching of library item is functional equivalent to an atom claimed herein for running a computer program which contains

references to a library. Therefore, one would be motivated to utilize shared libraries which does not adversely affect run-time performance (Sands, col. 2, lines 28-29).

21. As per claim 2, Sands teaches wherein the memory address is a memory address of a stub routine that loads the referenced item and jumps to the referenced item (col. 2, line 60; col. 5, lines 36-51; col. 6, lines 21-43).

22. As per claim 3, Sands teaches wherein the memory address to the stub routine is overwritten by an updated memory address directly referencing the referenced item (col. 6, lines 21-51).

23. As per claim 4, Sands teaches wherein the memory address to the stub routine is overwritten for all loaded items referencing the referenced item (col. 6, lines 21-67; col. 7, lines 1-11).

24. As per claim 5, Sands teaches encoding the memory address such that a referenced data atom is not loaded until actually accessed at runtime (col. 2, lines 60-68; col. 5, lines 3-21).

25. As per claim 6, it is rejected with the same reason as claim 5.

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26. As per claim 7, Sands teaches reordering the items in a disk-based item database for efficient access (col. 5, lines 58-68; col. 6, lines 1-2).

27. As per claim 8, Sands further teaches updating at least one of the items in the item database by replacing the computer program code or data information and the computer program code or data reference information (col. 9, lines 58-68; col. 10, lines 1-43).

28. As per claim 9, Sands further teaches adding a new item to the items in the item database (col. 6, lines 36-43).

29. As per claim 10, Sands further teaches deleting a selected item from the items in the item database (col. 6, lines 43-51).

30. As per claim 12, Sands teaches wherein loaded items are removed from memory based upon a predetermined usage threshold (col. 4, lines 65-67).

31. As per claim 13, Sands teaches wherein execution of a loaded item begins prior to loading all items referenced by the loaded items (col. 5, lines 24-36).

32. As per claim 14, Sands teaches modifying the computer program code or data reference information (col. 3, lines 15-23).

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33. As per claim 15, it is rejected with the same reason as claim 14.

34. Claims 11, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sands (U.S. Patent No. 5291601), as applied in claim 1, in view of Henkel et al. (hereafter Henkel) (U.S. Patent No. 6691305).

35. As per claim 11, Sands teaches the invention substantially as claimed in claim 1. Sands did not specifically teach decompressing the computer program code or data information stored in a compressed format.

36. However, Henkel teaches decompressing the computer program code or data information stored in a compressed format (abstract, lines 20-22; figs 3 & 4; col. 6, lines 29-51).

37. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Sands and Henkel, because Henkel teaching of decompress the computer program code stored in a compressed format would improve the integrity of Sands's system by reducing power consumption as the compressed data traverse the bus (Henkel, abstract, lines 25-26).

38. As per claim 16, Henkel teaches a loaded item is shared between a plurality of executable processes by way of a read-only buffer (col. 6, lines 36-61).

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39. Claims 17, 19, 21, 23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sands (U.S. Patent No. 5291601), in view of Isozaki (U.S. Patent No. 5586020).

40. As per claims 17, 19, 21, 23, and 25, Sand teaches the invention substantially as claimed including a method for atomizing computer program code and data, comprising:

modifying the computer program code and data reference information to use library item identifiers (col. 3, lines 15-23); and

storing the computer program code and data information and computer program code and data reference information in library item comprising: a library item identifier; computer program code or data information; and computer program code or data reference information (col. 2, lines 59-60; col. 3, lines 5-10; col. 4, lines 54-64).

Sands did not specifically teach:

receiving the computer program code and data in an object code format defining individually addressable code and data;

extracting computer program code and data information from the computer program code and data in an object code format; and

extracting computer program code and data reference information from the computer program code and data in an object code format.

41. However, Isozaki teaches:

receiving the computer program code and data in an object code format defining individually addressable code and data (fig. 1; abstract, lines 3-8; col. 2, lines 1-2; col. 5, lines 43-45);

extracting computer program code and data information from the computer program code and data in an object code format (fig. 5; col. 5, lines 46-57; col. 7, lines 29-27); and

extracting computer program code and data reference information from the computer program code and data in an object code format (fig. 5; col. 5, lines 46-57; col. 8, lines 18-35).

42. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Sands and Isozaki because Isozaki teaching of receiving and extracting the computer program code, data information, data reference information would improve the integrity of Sands's system by providing a program transformation processing system which requires only a reduce memory region and which can executes its processing with a shortened processing time (Isozaki, col. 5, lines 31-35).

Conclusion

43. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tinker (U.S. Publication No. 2002/0073398) teaches modifying executable code to add functionality.

Hemsing et al. (U.S. Publication No. 2004/00159923) teaches method for reducing memory footprints in processor architectures.

Codd et al. (U.S. Patent No. 6421667) teaches method for storing, maintaining, and executing processing logic on a computer system.

44. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer N. To whose telephone number is (571) 272-7212. The examiner can normally be reached on M-T 7AM- 4:30 PM, F 7AM- 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer N To
Examiner
Art Unit 2195


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